

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. APPLICATION NO. 09/986,694
ATTORNEY DOCKET NO. Q67018

REMARKS

This amendment, submitted in response to the Office Action dated March 18, 2003, is believed to be fully responsive to each point of rejection raised therein. Accordingly, favorable reconsideration on the merits is respectfully requested.

The Office Action raises several informalities. The Examiner has objected to the drawings because reference character 31 is used to describe both a control mode table and different control modes at page 15, lines 6 and 18. Applicant has amended the specification as indicated in the enclosed substitute specification. The undersigned verifies that no new matter is added.

The Examiner has also objected to the drawings because item 10 is not indicated in the drawings. It appears the Examiner has mistaken the unit description on page 11, line 12 of the specification as representing item 10.

Applicant has also amended Figs. 4, 5, and 6 to more accurately describe the invention as shown in the enclosed drawings.

The IDS has been objected to because the "other documents" listed are merely abstracts of the Foreign Patent Documents. This does not appear unreasonable since the Abstracts are merely summaries of the foreign patent documents and are therefore redundant.

The specification has been revised as indicated by the Examiner for grammatical errors.

The claims have been objected to for informalities. The claims have been amended as indicated above.

Turning to the merits of the Office Action, the Examiner rejected claims 1-5 under 35 U.S.C. § 102(b) as being anticipated by Zingher et al. (USP 5,091,859). Claims 6-7 and 10 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Zingher. Claims 8-9 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Zingher in view of Clauss (USP 2,908,219). Applicant submits the following arguments in traversal of the rejections.

Rejection of claims 1-5 under § 102(b) as being anticipated by Zingher

Zingher pertains to a control system for a printing plant comprising a central computer and a plurality of identical peripheral computers. See Abstract. The goal of Zingher is to unify the printing press control system for exchange of information so that the same information need not be entered for each peripheral computer. Column 2, lines 29-35.

As an initial matter, Applicant submits that Zingher teaches away from the present invention because Zingher requires an operator to command performance of an instruction sequence. Column 4, lines 60-65. In the present invention, since designation information and control mode information are registered (claim 3), an operator does not have to command the system to perform an instruction sequence, but upon a change in designation information, the system obtains new control mode information in order to execute a new instruction, as described in the specification, and further described in newly added claim 14.

Claim 1:

The Examiner maintains that Zingher teaches a process execution apparatus 14 for executing a given process and a process control apparatus 6, which executes a prescribed process control of the process execution apparatus. The Examiner then goes on to say that that Zingher

discloses a process designating apparatus 1, which designates the process control of the process control apparatus where the process designation apparatus possesses a designation information list 2 for the process control. The Examiner's reasoning does not appear unreasonable with respect to this language of the claim.

The Examiner additionally maintains that the process control apparatus 6 comprises a control mode table 7 which includes a control mode defining the actuation of the process designating apparatus. Applicant submits that data memory 7 is used for storage of programs, temporary results, and data to be used by processing units 3-6. Column 4, lines 48-53. The data is not used to define actuation of the process designating apparatus, since they bear no relationship to the purported designating apparatus 1. The data of memory 7 is purely for local controls, and data is not provided to it by the central server. Column 4, lines 48-53.

The Examiner also indicates that process controller 9 acquires a prescribed control mode from control mode table 7 to perform process control of the process execution apparatus. Instruction sequence memory 9, which stores and edits sequences of instructions, is associated with the definition memory 8, which the Examiner has associated as an information reader, and does not acquire a control mode from control mode table 7. Column 4, lines 60-68. Therefore, instruction sequence memory 9 acquires a control mode from definition memory 8 and not data memory 7. It is further noted, that data memory 7 does not interoperate with memory 8 or 9 to acquire a control mode, but the memories 7-9 merely interoperate to control and report on the connected auxiliary equipment and their operation. Column 9, lines 63-69. Therefore, the inter-relationships of the last element of claim 1 is not met by Zingher.

For the above reasons, claim 1 and its dependent claims should be deemed patentable.

Claim 3:

The Examiner maintains that Zingher teaches an information registration apparatus 11 intensively performs registration of designation information from designation information list 2 in the process designating apparatus 1 and the registration of the control mode in the process control apparatus 6 at one portion.

Auxiliary equipment 11, which is interfaced with peripheral computer 4, is a data input device such as a disk scanner which contains data for different jobs. Column 5, lines 16-30.

Auxiliary equipment 11 does not appear to register information with the central computer 1 and the peripheral computer 6. Therefore, claim 3 should be deemed patentable.

Rejection of claims 6-7 and 10 under § 103(a) as being unpatentable over Zingher

Claims 6 and 7:

The Examiner maintains that it would have been obvious to one of ordinary skill in the art to teach an information reader, which reads designation information, that automatically makes a query for designation information at a predetermined given timing. Applicant submits that it would not have been obvious to automatically make a query upon the completion of printing. For example, after printing, the system could stop, and remain in an inactive mode until another printing is ordered by an operator. It appears that the Examiner's reasoning is merely a result of hindsight and based upon speculation.

Claim 10:

As an initial matter, we would bring to the Examiner's attention that no reference was cited for describing lines 1-17 of claim 10. The features include the last control element of claim 1, and therefore is patentable for the reasons set forth for claim 1.

The Examiner maintains that the remaining elements of claim 10 would be obvious to one of ordinary skill in the art and cites no reasoning in support of the argument. Merely reiterating the language of the claim without providing a reason as to its obviousness or establishing that the reference expressly or impliedly suggests the claimed invention, does not establish a prima facie case of obviousness. MPEP 2143.03. Therefore, claim 10 should be deemed patentable.

Rejection of claims 8-9 under § 103(a) as being unpatentable
over Zingher in view of Clauss

The Examiner cites Clauss for disclosing the elements of claims 8 and 9. Clauss pertains to marking packages or containers with lids in a printing station. The packages are subsequently transported away for further processing. Column 1, lines 15-22.

With respect to claim 8, we propose arguing that Clauss does not pertain to a flexible manufacturing line as indicated in claim 8 and as further described in newly added claims 13 and 15. In particular, it does not appear that the system in Clauss can flexibly switch printing modes for one kind of product to another kind of product since Clauss only pertains to printing for packages or containers to be sealed with lids. Column 2, lines 25-29.

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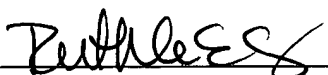
Also, it does not appear that the printing system of Clauss could be combined with Zingher. Clauss does not teach or suggest computerization of its system and it is unclear, and the Examiner has not explained, how that system could be made to run on a computerized printing system. The Examiner's reasoning is merely a result of hindsight upon viewing the present invention.

Applicant has added claims 11-17 to provide a more varied scope of protection.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

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SYSTEM AND METHOD FOR ~~DESIGNATION~~ DESIGNATING PROCESS
INFORMATION

BACKGROUND OF THE INVENTION

5

FIELD OF THE INVENTION

The present invention relates to an information
~~designation~~ designating system which designates process
control, and which is applicable to a wide variety of
process ~~control~~ controls mainly in a flexible manufacturing
10 line in a manufacturing factory, and a method for
designating the process control in said system.

DESCRIPTION OF RELATED ARTS

Here, a printing process in packing and shipping
15 lines for cosmetic containers or food containers will be
exemplified and described as a typical flexible
manufacturing line. In the packing and shipping lines for
cosmetic containers or food containers, a prescribed number
of the packed products are encased in a unit box (small
20 box), and a prescribed number of the unit boxes are encased
in a transporting box (large box), which will be shipped.
The unit box and the transporting box in which the products
are encased are subjected to prescribed printing including
a packing ID, a lot number, and/or name of manufacturer.

As just mentioned, since the printing process is executed subsequent to the packing process or encasing process of the products, a plurality of printing presses (printers) are distributed near the packing machine(s) and the
5 encasing machine(s). Each of the printers individually ~~carries~~carry out printing ~~process~~processes based on a prescribed printing mode which defines designed letters and patterned images to be printed, printing positions, sizes, colors thereof and the like.

10 In the case of the process control of the printers installed in a distributed manner, there is a possibility that setting ~~error~~errors will occur if the control data which defines the printing mode is set for a control apparatus which controls the actuation of respective
15 printers. For this reason, a system has hitherto been constructed in which a server system unifying respective apparatuses is installed in the system and the control data to control respective control apparatuses is set all at once from the server.

20 However, in the case of ~~the~~ products such as ~~the~~ cosmetic containers and ~~the~~ food containers manufactured in ~~the~~ flexible manufacturing lines, new kinds of products will be often added within a relatively short period of time. Also, in such a case, due to shipping control such

as increasing the number of ~~the~~ products, printers and/or
control units are often added. When the set conditions in
the printing process are modified or ~~the equipments~~
~~are~~equipment is added, various settings in the server
5 system should be modified according to the change in the
conditions etc. These modifications involve for example
rewriting ~~of the designation~~designating program for
controlling the printing mode, resetting of numbers for
identifying the products and the printing mode for the
10 kinds of the products, leading to the problems in terms of
complicated handling, increased man-hours, and
~~expense~~increased costs.

SUMMARY OF THE INVENTION

15 The present invention has been made to solve the
above problems and an object of the present invention is to
provide a system and a method for ~~designation~~designating
process information excelling in extensibility which can
easily deal with modifications of ~~the~~ setting conditions
20 and the addition of ~~the equipments~~equipment as in the
printing process in ~~the~~ a flexible manufacturing process.

According to the present invention which can attain
the object described above, there is provided a system for
~~designation~~designating process information comprising:

a process execution apparatus for executing a given process,

a process control apparatus which executes a prescribed process control of said a—process execution apparatus; and

a process ~~designation~~designating apparatus which designates the process control of said process control apparatus. The process ~~designation~~designating apparatus possesses a designation information list for the process control, and said process control apparatus possesses a control mode table including a control mode which defines the actuation of the process ~~designation~~designating apparatus; an information reader which reads the designation information from said designation information list, and a process controller which acquires a prescribed control mode from said control mode table to perform the process control of said process execution apparatus.

In the system for ~~designation~~designating process information, the process control apparatus reads the designation information presented~~represented~~ from the process ~~designation~~designating apparatus, and based on the read information, a prescribed process control is performed. Specifically, the process ~~designation~~designating apparatus only possesses process designation

information including a series of information concerning
specification of the subjects to perform a-specific work,
e.g., designation information such as kind of product,
derivation, and lot number, and does not possess a series
5 of information concerning the actuation of the process
execution apparatus. The process control apparatus has the
control mode table containing the control modes each
defining the actuation of each of the process execution
apparatuses individually. The process execution apparatus
10 makes a query for the designation information to the
process ~~designation~~ designating apparatus at a prescribed
timing, reads the control mode corresponding to the
represented designation information from the control mode
table, and controls the process execution apparatus
15 according to the read control mode.

In the present invention, since the process control
is carried out as described above, in the case where the
modification of the setting conditions for performing the
process control or the addition of the process execution
20 apparatus(es) will be made, it is not required for the
process ~~designation~~ designating apparatus to modify how to
represent the designation information, but it is only
required to set a control mode. The division of
information for the process control into the designation

information indicating the kind of products and the control mode table indicating the control mode and the distribution of ~~them~~ the information to separate apparatuses makes it possible to deal with the extension of the system in an easy manner. It is noted that in the process control, the process control table is not referred to one after another, but is referred to only in the case where the designation information is different from the information of the prior opening, the system judges that the control mode is shifted to the next control mode, at which the process control apparatus refers to the process control table and switches the control mode to the next control mode.

There is also provided a method for designating process control in a system for ~~designation~~ designating process information comprising: a process execution apparatus for executing a given process, a process control apparatus which executes a prescribed process control of said a—process execution apparatus; and a process ~~designation~~ designating apparatus which designates the process control of said process control apparatus, said process ~~designation~~ designating apparatus possessing information list for the process control, said process control apparatus possessing a control mode table including a control mode which defines the actuation of the process

~~designation~~ designating apparatus, an information reader
which reads the designation information from said
designation information list, and a process controller
which acquires a prescribed control mode from said control
5 mode table to perform the process control of said process
execution apparatus, the method -comprising the following
steps:

a) a step in which said control apparatus performs
a prescribed process control at the presently acquired
10 process control mode;

b) a step in which the step a) is continued until
said process execution apparatus completes said prescribed
process;

c) a step in which after the process execution has
15 been completed, said process control apparatus makes a
query for the designation information to said process
~~designation~~ designating apparatus;

d) a step in which, upon receiving the query for
the designation information, said process ~~designation~~
20 designating apparatus reads the designation information
from the designation information table and represents said
designation information utilizing a response signal to said
process control apparatus,

e) a step in which said process control apparatus

~~judged~~judges whether or not the control mode is switched to the next control mode; and

f) a step in which if said process control apparatus is judged to switch~~have switched from~~ the control mode into the next control mode, said process control apparatus acquires a prescribed control mode from the control mode table and ~~initiate~~initiates said acquired control.

10

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an explanatory drawing which totally explains the printing process in the packing and shipping lines for cosmetic ~~container~~containers, food ~~container~~containers or such.

15

Fig. 2 is a block diagram showing the configuration of the information ~~designation~~designating system of the present system.

20

Fig. 3 is a block diagram showing the functional configuration of the information ~~designation~~designating system of the present system.

Fig. 4 shows one example of a list of the designation information.

Fig. 5 ~~sews~~shows one example of the represented designation information.

Fig. 6 shows one example of the control mode table.

Fig. 7 is a flowchart showing the operation of the information ~~designation~~-designating system according to the present invention.

5

DESCRIPTION OF THE ~~PREFERRED~~-EXEMPLARY EMBODIMENTS

The information ~~designation~~-designating system according to the present invention will now be described.

The present invention ~~concerns~~-is directed to a
10 system for ~~designation~~-designating process information mainly comprising a process execution apparatus for executing a given process, a process control apparatus which executes a prescribed process control of said a process execution apparatus; and a process ~~designation~~
15 designating apparatus which designates the process control of said process control apparatus.

The process execution apparatus(es) to be used in the present invention may be one or more and they are not specifically restricted as long as they perform a
20 prescribed process corresponding to a process control signal from the process control apparatus. Each ~~of~~ the process is appropriately selected depending upon the objects. For example, for a process execution in which letters are printed on a carbon copy type continuous form,

a dot matrix printer may be selected. For example, for a process execution in which a color printing is performed, a color laser beam printer or an inkjet printer or a combination thereof can be selected. The process execution
5 apparatus possesses an interface for receiving a process control signal from the process control apparatus. These process execution apparatuses are freely selected in the objected lines and they may be the same or different.

The process control apparatus in the present
10 invention ~~are~~is not specifically restricted as long as ~~they~~it has a hardware configuration, which will be described fully later on, and upon receiving process control designation information from the process ~~designation~~designating apparatus, which will be described
15 below, ~~they~~it ~~sends~~sends a signal ~~for~~to the process control of the corresponding process execution apparatus. An example includes a computer system. The process control apparatus used in the system of the present invention may be one or more as occasion demands. The process control
20 apparatus has an interface for exchanging the signal (information) to the process execution apparatus and the process ~~designation~~designating apparatus. In ~~an~~an ~~specific~~exemplary embodiment, the process control apparatus may be accommodated within the process execution apparatus.

The process ~~designation~~designating apparatus is an apparatus making a process information designation by any of the known methods, and an example thereof is a server. The process ~~designation~~designating apparatus is connected
5 to the process control apparatus, e.g., via a local area network (wire or wireless). By communication through the known protocol, the process ~~designation~~designating apparatus can make a process control designation to the process control apparatus. Each of the process control
10 apparatus(es) and the process ~~designation~~designating apparatus(es) ~~has~~have communication means such as a modem, a terminal adaptor, or a router. They can be or are always connected via any of various lines such as switched lines, ISDN lines, and leased lines.

15 Consequently, the present invention is not restricted as to how to send and receive data.

In the following embodiments, the system of the present invention will be described utilizing the printing process in packing and shipping lines for cosmetic
20 containers or food containers as a typical example. However, it should be noted that the present invention should ~~be not~~not be restricted to such a printing process.

Fig. 1 is an explanatory drawing which totally explains the printing process in the packing and shipping

lines for cosmetic ~~container~~containers, food ~~container~~
containers or such. In this figure, references 40a, 40b,
and 40c each ~~stands~~stand for a printer such as an inkjet
printer (process execution apparatus), 30a, 30b, and 30c
5 each stand for a process control apparatus, which executes
a prescribed printing control of each of the ~~printer~~
printers 40a, 40b, and 40c, and 20 stands for a process
~~designation~~designating apparatus which presents~~represents~~
designation information concerning the process control of
10 the process control apparatuses 30a, 30b, and 30c.

In the packing and shipping lines, first containers 1
which ~~had~~have been packed with a warping film are
subjected to prescribed printing by means of the printer
40a to prepare printed containers 2. The printed
15 containers 2 are encased in a unit box 3 at a prescribed
unit such as ten, and the unit box 3 is subjected to a
prescribed printing by means of the printer 40b to prepare
a printed unit box 4. The printed unit boxes 4 are further
encased in a transporting box 5 at a prescribed unit such
20 as ~~10~~ten. The transporting box 5 having been printed is
closed, sealed, and then ~~are~~is subjected to a prescribed
printing by means of the printer 40c to prepare a printed
transporting box 6. The printed transporting boxes 6 are
aligned and piled up to be ready for shipping.

Next, referring to Fig. 2, the configuration of the process information ~~designation~~designating system according to the present invention will be described. In the drawing of Fig. 2, between the process ~~designation~~designating apparatus 20 and each of the process control apparatuses 30a, 30b, and 30c, is connected a communication line 60. The communication line 60 may be a cable line~~lines~~line, a wireless line~~lines~~line or a combination thereof. An information registration apparatus 50 is an apparatus for intensively performing the registration of the designation information in the process ~~designation~~designating apparatus 20 and the registration of the control mode in the process control apparatus 30 at one portion. The operations of the printers 40a, 40b, and 40c, which are the process execution apparatuses, are controlled by means of the process control units 30a, 30b, and 30c, respectively.

[Process ~~Designation~~Designating Apparatus]

Next, referring to Fig. 3, the process ~~designation~~designating apparatus 20 will be described. In this figure, the process ~~designation~~designating apparatus 20 is composed of a designation information list 21 which stores the designation information for the process control

apparatus 30, and a registrar 22 (registering means) which registers the designation information. Optionally, a monitor 23 for monitoring the ~~operation~~operating condition of the printer 40 may be included in the process
5 ~~designation~~designating apparatus 20.

The designation information list 21 is a list for a series of designation information required for acquiring the control mode by the process control apparatus 30. Fig. 4 shows an example of the designation information list 21.
10 In the example shown in this figure, designation information concerning product number (shown as Product No. in the figure), a lot number (shown as Lot No. in the figure), a number of ~~product~~products (shown as ~~No.~~Number of Products in the figure), destination (shown as
15 Destination in the figure) and the like is registered. The ~~production~~product number concerns a number for distinguishing the kind of ~~the~~product to be dealt with in the printing process. The lot number concerns a number which can identify the date and place of production, parts
20 making up the product, and the like. The number of products concerns a prescribed number of the products to be printed ~~given~~in a given lot. The destination concerns information for the receiver and their address, the orderer, and the like. The designation information list 21

is stored in a prescribed address within a storage device
(not shown) of the process ~~designation~~designating apparatus
20 in a readable manner.

The registrar 22 is a means for registering the
5 designation information in the designation information list
21. The designation information including the product
number, lot number, number of ~~the~~ products, destination and
the like is registered via the registrar 22 as occasion
demands. In the case where a new handling product is
10 added, the production number thereof is ~~newly~~ added. The
registration of the designation information is performed
via an inputting device (not shown) of the process
~~designation~~designating apparatus 20. Taking security into
~~the consideration of the security~~, it is possible that only
15 a predetermined operator can ~~operate~~perform this operation.
In this case, the user authorization of the operator is
performed as the process ~~designation~~designating apparatus
20 requests ~~for~~ the operator to input an ID number and a
password. Also, as shown in Fig. 2, the information
20 registration apparatus 50 can be disposed to jointly
perform this operation and the registration of the control
mode in the process control apparatus 30, which will be
described later on.

The monitor 23 ~~for monitoring the operation condition~~

is a means for monitoring the operating condition of the printer 40. The system depicted on Fig. 3 is configured so ~~that the operation~~operating condition of the printer 40 is acquired via the process control apparatus 30. Usually, 5 the process control apparatus 30 always catches the operating condition of the printer 40. It is more effective if the information for the operating condition of the printer 40 is received from the process control apparatus 30 rather than ~~such information is directly~~ 10 ~~acquired~~acquiring such information from the printer 40.

[Process Control Apparatus]

Next, the process control apparatus 30 will be described referring to the functional block diagram of Fig. 15 3. In this figure, the process control apparatus 30 is composed of a control mode table 31 including control modes, a registrar 32 for registering the control modes, a reader 33 for reading the designation information from the process ~~designation~~designating apparatus 20, and a process 20 controller 34, which acquires a prescribed control mode from the control mode table 31 based on the designation information having been read to perform the process control of the printer 40. The process control apparatus 30 may also be configured to possess means for notifying the

operating condition of the printer 40, which catches the operating condition for the printer 40 and notifies it to the process ~~designation~~-designating apparatus 20.

The control mode table 31 is a table in which the
5 control modes for executing the printing control of the printer 40 are registered. Fig. 6 shows an example of the control mode table. In the control mode table, the control mode, which defines ~~the~~printing data such as designed letters and patterned images, printing positions, sizes and
10 colors, is registered per every product ~~number~~number. This control mode has been previously set so as to uniquely correspond to the product number represented from the designation information. For example, a product number "A" corresponds to a control mode "a", and a product number "B" corresponds to a control mode "b". Although not shown in
15 the figure, different control modes in control mode table 31 are registered in the respective process control apparatuses 30, for the same product number "A". For example, the control mode in one process control apparatus
20 30 is registered so as to print the packing ID number, whereas the control mode in another process control apparatus 30 is registered so as to print the lot number, respectively. The control mode table 31 is stored in a prescribed address within the storage device (not shown) of

the process control apparatus and can be read via the process controller 34.

The registrar 32 for the control mode is a means for registering a prescribed control mode in the control mode table 31. By means of the registrar 32 for the control mode, the control mode for printing such as designed letters and patterned images to be printed in the printer 40, printing positions, sizes, colors thereof and the like is registered in advance. If a new handling product is added, the control mode corresponding to the product concerned is newly registered. It may also be configured that the registrar 32 for the control mode and the registrar 22 for registering the designation information described above are unified with each other. For example, as shown in Fig. 2, the information registration apparatus 50 can be disposed to jointly perform the registering operations. By such a configuration, the designation information which will be registered in the process ~~designation~~designating apparatus 20 and the control mode which will be registered in the process control apparatus 30 can be registered in such a manner as to correctly and uniquely correspond to the product number represented in the designation information. In addition, in comparison with individual registrations in respective apparatuses,

the registration can be performed effectively.

The reader 33 for reading the designation information makes a query for the designation information to the process ~~designation~~designating apparatus 20, and reads out
5 the designation information contained in the designation information list 21. The query for the designation information is, for example, automatically performed at a predetermined given timing. The timing of the query is decided considering ~~such~~-elements such as the shipping
10 amount of the handling products, and the operating time, and freely varies. For example, it can be set to make a query ~~every~~at a given time~~time~~, or to make a query ~~every~~ after the completion of every~~the~~ printing. Also, for the purpose of ~~the~~-maintenance and for precaution against
15 unexpected trouble, it is preferable that a signal for a query can be manually sent.

The process controller 34 is a means for acquiring a prescribed control mode from the control mode table 31 based on the designation information and for executing the
20 printing control based on the acquired control mode. The process controller 34 prepares printing data corresponding to the product number contained in the designation information and controls the printer 40 so as to ~~make~~
perform prescribed printing.

The device 35 for notifying the operating conditions
is ~~to notify~~ notifies the present operating condition, which
are ~~is~~ is always caught, to the process ~~designation~~
designating apparatus 20 at a prescribed timing. For
5 example, with regard to the notification of the present
operating condition, the information of the ~~operation~~
operating condition may be included ~~in~~ and the query signal
for the designation information sent from the reader 33 for
reading the designation information. In this case, it is
10 also preferable for maintaining the monitoring of the
operation of the total system in a matched state to notify
the present operating condition to the process ~~designation~~
designating apparatus 20 if the operating condition of the
printer 40 is changed.

15 [Configuration of Hardware]

The hardware configuration of the process
~~designation~~ designating apparatus 20 and that of the process
control apparatus 30 will be described. Both the process
20 ~~designation~~ designating apparatus 20 and the process
control apparatus 30 may be composed of information process
apparatuses such as personal computer systems. The
information processing apparatus is composed of a control-
processing unit which totally controls the whole of the

apparatus having a storage device connected thereto. To the control-processing unit are connected inputting devices including a keyboard, a mouse, a scanner and the like and a display unit for use in monitoring the input/output data, 5 output devices which ~~outputs~~output a wide variety of data, and a communication unit via an I/O controller.

The control-processing unit is composed of a central processing unit (CPU) and an internal memory, in which an operating system (OS) and any other ~~programs~~program for 10 executing various registrations and controls are developed. For example, in the process ~~designation~~designating apparatus 20, there is a program for registering the designation information, and in the process control apparatus 30 there is a program for having the operating 15 condition of the printer included in the designation information. Also, included in the process control apparatus 30 ~~are~~is a program for registering the control mode, a program for inquiring the designation information, a program for acquiring a prescribed control mode based on 20 the read designation information to execute the printing control, a program for notifying the operation conditions of the printer 40 to the process ~~designation~~designating apparatus 20, and the like.

The designation information list 21, the registrar 22

for registering the designation information, and a monitor
23 for the operating condition in the process
~~designation~~designating apparatus 20, and the control mode
table 31, the registrar 32 for registering the control
5 mode, the reader 33 for reading the designation information
and the device 35 for notifying the operating conditions in
the process control apparatus 30 realize their functions
respectively by means of the hardware configurations and
the programs described above.

10 The storage device comprises a hard disk drive, a
photo magnet disk or the like, and has the designation
information list 21 and the control mode table 31
respectively prepared therein.

While the process ~~designation~~designating apparatus 20
15 possesses a program for executing the printing control to
the printer 40, this program is generally referred to as a
sequence control program. Specifically, the process
~~designation~~designating apparatus 20 is composed of a
~~devices~~device having an information processing function
20 and a sequence control function.

[Operation]

Referring to Fig. 7, the operation of the information
~~designation~~designating system according to the present

invention will be described. In the flowchart depicted on Fig. 7, the process control apparatus 30 performs a prescribed printing control to the printer at the control mode now ~~acquiring~~acquired (Step 101). This printing
5 control is continued until a prescribed number of prints have been completed (Step 102). After the completion of printing a prescribed number of prints, the process control apparatus 30 sends the notification of completion of the printing to the process ~~designation~~designating apparatus
10 20 (Step 103).

When the prescribed printing has been finished, the process control apparatus 30 makes a query for the designation information to the process ~~designation~~designating apparatus 20 (Step 104). The query may be
15 repeatedly made even before the printing control for printing a prescribed number every prescribed period of times is completed. Upon receiving the query for the designation information, the process ~~designation~~designating apparatus 20 reads the designation information from the
20 designation information list 21, and represents the read designation information to the process control apparatus 30 using a response signal to the process control apparatus 30 (Step 105). At this time, it is possible to provide a specific flag showing specific conditions for the

alternation, and to add the designation information to the response signal when the flag is "ON".

Here, an example ~~of~~—representing the designation information is shown in Fig. 5. Fig. 5 exemplifies that
5 the product number, lot number, number of products ~~(of the products)~~, and ~~operation~~operating condition are included as ~~the~~ designation information. The reason why the lot number should be represented is for the purpose of carrying out a lot product in an ensured and effective manner.
10 Usually, a lot production is applied in the case where many kinds of products are continuously produced. In relatively inexpensive products such as cosmetic containers and food containers, it is important for realizing packing and shipping lines with a low cost to effectively switch one
15 lot into another lot. For this reason, there is an advantage after the packing and shipping lines are completed (emptied) for one lot, the next lot is incorporated in terms of the fact that complicated lines are not needed and in terms of the fact that the
20 misprinting and packing error can be prevented.

By adding the number of the products to the designation information, a prescribed number of prints can be automatically performed. Moreover, if the destination is added to the designation information, a lot production

of a prescribed number of products can be made for every destination. As for the designation information, while an operator registers the production number, lot number, and number of products in the designation information list 21 according to the production plan, for example, the number of ~~the~~ products may be individually registered to the process control apparatus 30.

In Fig. 5 the operating condition is included in the designation information for the purpose of synchronizing the switching operation in the control mode of the process control apparatus 30 with the whole of the system. The management of the switching operation of the process control apparatus 30 as described above avoids the complicated individual operations and makes it possible to initiate a lot unit of the printing in an ensured and simplified manner. It is noted that the ~~operation~~ operating condition ~~represented~~ presented from the designation information is any of "producing", "stopping", and "switching". The term "producing" means the situation where all the printers 40 execute printing, "switching" means the situation where part of the plurality of plural printers ~~complete the~~ have completed printing and are now ~~under~~ switching to the next control mode, and ~~the~~ "stopping" means the situation where all the printers 40

have completed the printing and they are ready for switching to the next control mode.

Again referring to Fig. 7, when the operation condition represented from the designation information is not "stopping" in each of the process control apparatuses 30, it is judged that all the lines ~~have~~are not yet been ready for switching. In this case, even if one process control apparatus 30 has completed a prescribed number of prints, this process control apparatus 30 awaits the switching to the next control mode until the operating condition indicates "stopping" (Step 106). Thereafter, the "stopping" is represented from the operating condition after several queries, the process control apparatus 30 acquires a prescribed control mode corresponding to the product number (Step S107), and the control through a prescribed printing data is initiated to switch ~~let~~lots (Step S108).

While the information ~~designation~~designating system according to the present invention ~~have~~has been described by referring to the exemplary embodiment, it should be noted that the present invention is not restricted to such an embodiment, and various modifications and variants can be made without departing from the ~~sprits~~spirit and the scope of the present invention. For example, the process

~~designation~~ designating apparatus 20 may also be configured to have the functions of the process control apparatus 30. Similarly, the process control apparatus 30 may also be configured to have the functions of the process execution apparatus like the printer 40. As just mentioned, each of the apparatuses constructing the system according to the present invention may be separated ~~at~~ as a functional unit or some of the ~~apparatus~~ apparatuses making up the system according to the present invention may be unified with each other.

Also, while the information ~~designation~~ designating system for a printing process in the packing and shipping lines in cosmetic containers or food containers has been described in the embodiment of the present invention, the system according to the present invention is not restricted thereto, but is applicable to a wide range of fields. Particularly, the system according to the present invention is advantageously applicable to processes where the handling products are added or ~~the~~ installation is added in a flexible manufacturing line.

WHAT IS CLAIMED IS:

1. (Amended) A system for ~~designation~~designating process information comprising:

5 a process execution apparatus for executing a given process,

 a process control apparatus which executes a prescribed process control of said ~~a~~-process execution apparatus; and

10 a process ~~designation~~designating apparatus which designates the process control of said process control apparatus,

 said process ~~designation~~designating apparatus possessing a designation information list for the process
15 control,

 said process control apparatus possessing a control mode table including a control mode which defines the actuation of the process ~~designation~~designating apparatus, an information reader which reads the designation
20 information from said designation information list, and a process controller which acquires a prescribed control mode from said control mode table to perform the process control of said process execution apparatus.

2. (Amended) The system according to Claim 1,
wherein said process ~~designation~~designating apparatus
makes a process designation via a local area network or
through a communication apparatus.

5 3. (Amended) The system according to Claim 1,
which has an information registration apparatus for
intensively performing the registration of the designation
information in the process ~~designation~~designating
apparatus and the registration of the control mode in the
10 process control apparatus at one portion.

4. (Amended) The system according to Claim 1,
wherein said process ~~designation~~designating apparatus has
a monitor for monitoring the ~~operation~~operating condition
15 of the process execution apparatus.

5. The system according to Claim 4, wherein said
monitor acquires the operating condition of the process
execution apparatus via the process control apparatus.

20 6. The system according to Claim 1, wherein said
information reader which reads the designation information
automatically makes a query for the designation information
at a predetermined given timing.

7. ~~(Amended)~~ The system according to Claim 6,
wherein said timing of the query is set to make a query
~~every~~ at a given ~~time~~ time, or to make a query ~~every~~ after
5 the completion of ~~the~~ every printing.

8. ~~(Amended)~~ The system according to Claim 1,
which is applied to a process control in a flexible
manufacturing line.

9. The system according to Claim 8, wherein said
flexible manufacturing line is a printing process in
packing and shipping lines for containers.

10. ~~(Amended)~~ A method for designating process
control in a system for ~~designation~~ designating process
information comprising: a process execution apparatus for
executing a given process,

 a process control apparatus which executes a
20 prescribed process control of said ~~a~~ process execution
apparatus; and a process ~~designation~~ designating apparatus
which designates the process control of said process
control apparatus, said process ~~designation~~ designating
apparatus possessing a designation information list for the

process control, said process control apparatus possessing
a control mode table including a control mode which defines
the actuation of the process ~~designation~~designating
apparatus, an information reader which reads the
5 designation information from said designation information
list, and a process controller which acquires a prescribed
control mode from said control mode table to perform the
process control of said process execution apparatus, the
method ~~comprising~~ the following steps:

10 a) a step in which said control apparatus performs
a prescribed process control at the presently acquired
process control mode;

 b) a step in which the step a) is continued until
said process execution apparatus completes said prescribed
15 process;

 c) a step in which after the process execution has
been completed, said process control apparatus makes a
query for the designation information to said process
~~designation~~designating apparatus;

20 d) a step in which, upon receiving the query for
the designation information, said process ~~designation~~
designating apparatus reads the designation information
from the designation information table and ~~represents~~
presents said designation information utilizing a response

signal to said process control apparatus,

e) a step in which said process control apparatus
~~judged~~ judges whether or not the control mode is switched
to the next mode; and

5 f) a step in which if said process control
apparatus is judged to switch the control mode into the
next control mode, said process control apparatus acquires
a prescribed control mode from the control mode table and
~~initiate~~ initiates said acquired control.

10

ABSTRACT OF THE DISCLOSURE

A designation information list 21 containing designation information is provided in a process
5 ~~designation~~designating apparatus 20, and a control mode
table 31 which defines the actuation of the process
~~designation~~designating apparatus, an information reader 33
which reads the designation information from the process
~~designation~~designating apparatus 20, and a process
10 controller 34 which acquires a prescribed control mode from
the control mode table 31 to perform a prescribed process
control are provided in a process control apparatus 30 so
that the process ~~designation~~designating apparatus 20 only
represents the designation information and the process
15 control apparatus 30 reads this designation information to
perform the process control through the prescribed control
mode.



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FIG.4

Products

21

Product No.	Lot No.	Number Of Product	Destination
A	x x x x x	2000	Tokyo
B	x x x x x	1500	Tokyo
B	x x x x x	3000	Osaka
.
.
.



FIG.5

[Designating Information]

Product No. A

Lot No. xxxxx

Products
Number Of Product 1000

Operating
Condition Stopping

FIG.6

31

Product No.	Printing Pattern	Printing Position	Size	Color	
A	000	x10,y10	20	Black	Control Mode a
B	△△△	x20,y10	18	Red	Control Mode b
C	x x x	x50,y60	32	Red	Control Mode c
-	-	-	-	-	
-	-	-	-	-	